

APPLICANT(S): KILCOYNE, John T et al.
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AMENDMENTS TO THE CLAIMS

Please add or amend the claims to read as follows, and cancel without prejudice or disclaimer to resubmission in a divisional or continuation application claims indicated as cancelled:

1-49. (Canceled)

50. **(Currently amended)** A system for measuring physiological parameters in the body of a patient indicative of gastroesophageal reflux, the system comprising:

a monitoring device, said monitoring device comprising a housing adapted to be implanted in the body of a patient by attachment to tissue inside the body and a plurality of sensors included in said housing adapted to be implanted in the body of a patient, wherein each of the plurality of sensors is capable of independently measuring a different respective physiological parameter indicative of gastroesophageal reflux ~~different from other physiological parameters indicative of gastroesophageal reflux measured independently by other sensors~~ and wherein said monitoring device ~~each of the plurality of sensors~~ periodically transmits a signal indicative of the value of the respective measured physiological parameter measured by each of the plurality of sensors ~~that is indicative of gastroesophageal reflux and wherein each of the signals includes an identifier that is indicative of the sensor from which the signal is sent; and~~

a receiver that receives the signals from the monitoring device, said signals representing measurements made by the respective plurality of sensors, determines a location for each sensor within an esophagus based on the identifier, [[and]] monitors the physiological parameters indicative of gastroesophageal reflux based on the received signals, and determines at least the presence of gastroesophageal reflux based on said plurality of signals ~~the determined locations~~.

51. **(Currently Amended)** The system of Claim 50, wherein at least one of said ~~each of the plurality of sensors~~ includes a pH monitor ~~and an RF transmitter~~.

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52. **(Currently Amended)** The system of Claim 51, wherein said monitoring device further each of the plurality of sensors also includes a radio frequency (RF) transmitter and a microprocessor that periodically receives a signal from the pH monitor and induces the RF transmitter to periodically send an RF signal indicative of the pH measured by the pH monitor.

53. **(Currently Amended)** The system of Claim 52, wherein the microprocessor ~~of each of the sensors~~ periodically enables the pH monitor of the monitoring device ~~respective sensor~~ during a first interval of each measurement cycle to obtain the pH signal and then disables the pH monitor during a second interval.

54. **(Currently Amended)** The system of Claim 53, wherein the microprocessor ~~of each of the sensors~~ enables the RF transmitter ~~of the respective sensor~~ during the second interval and disables the RF transmitter during periods of each cycle other than the second interval and disables the pH monitor ~~of the respective sensor~~ during periods of each cycle other than the first interval.

55. **(Currently Amended)** The system of Claim 50, wherein each of the signals includes an identifier that is indicative of the monitoring device from which the signal is sent and wherein the identifier for each of the signals comprises at least one of a frequency or a code.

56. **(Previously Presented)** The system of Claim 50, wherein the receiver is configured to be worn by the patient.

57. **(Previously Presented)** The system of Claim 50, wherein the receiver includes circuitry to sense a position of the patient, and the receiver periodically records the position of the patient.

58. **(Previously Presented)** The system of Claim 50, wherein the receiver monitors a change in pH as a function of distance from a lower esophageal sphincter.

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59. **(New)** The system of Claim 50, wherein said plurality of sensors include a pH monitor and an auxiliary sensor, wherein said auxiliary sensor is to measure an auxiliary physiological parameter that is not a pH parameter, wherein the receiver is configured to receive a pH reading from said pH sensor and to adjust said pH reading based on the measured value of the physiological parameter.

60. **(New)** The system of Claim 59, wherein the auxiliary physiological parameter is selected from the group consisting of: an ion concentration, a temperature, and a pressure.